

UNITED STATES GOVERNMENT

Memorandum

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TO : Refuge Manager, Medicine Lake National Wildlife Refuge, Medicine Lake, Montana DATE: February 29, 1968

FROM : Regional Supervisor, Division of Wildlife Refuges, Portland, Oregon

SUBJECT: Medicine Lake - Annual Water Program

Attached is your approved copy of the 1968 Water Program, as well as Mr. Huey's comments of February 28.

Vernon Ekedahl
Vernon Ekedahl

Attachments



UNITED STATES GOVERNMENT

Memorandum

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-Supervisor
-Associate
-Asst. Mnt-Id
-Asst. Wash Cr
-Asst. Calif
-Reg. Biol
-Planner
-Wildern
-Recreation
-Mgt. Asst.
-Secretary

DATE: February 28, 1968

TO : Regional Supervisor
Division of Refuges

FROM : Regional Engineer
Division of Engineering

SUBJECT: Medicine Lake - Annual Water Program

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 ✓ Discuss ✓ ✓ File

We have made a review of the attached water use program and find it satisfactory from the standpoint of engineering.

It is suggested that in the future, however, the place of use be shown on the summary rather than refer to a prior report which may not be readily available.

Arthur G. Huey
 Arthur G. Huey

Attachment



MEDICINE LAKE NATIONAL WILDLIFE REFUGE

MEDICINE LAKE, MONTANA

ANNUAL WATER PROGRAM - 1968

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

MEDICINE LAKE NATIONAL WILDLIFE REFUGE
MEDICINE LAKE, MONTANA

ANNUAL WATER PROGRAM - 1967-68

I. Record of 1967 Water Use

A. Source of Supply

Run-off water from melting snows and heavy rains during the months of March-May, 1967 provided the entire year's water supply for all impoundments on Medicine Lake Refuge. Summer and fall rains were so minor, they did not provide any measurable amount of additional water.

Big Muddy Creek, an intermittent drainage flowing in from Canada, provided over one-half of the water stored in Medicine Lake proper. The remaining water came in from overflow of Gaffney Lake and the northeastern impoundments.

Run-off water from Sheep Creek, Lost Creek and several other drainages provided the bulk of water utilized in Homestead Lake.

Lake, Cottonwood and Sand Creeks provided the water supply for water Units 10-12.

B. Type of Rights

The Bureau of Sport Fisheries and Wildlife through filings posted and recorded in 1936 and 1937 holds Appropriative Water Rights on five drainages. These rights are summarized as follows:

<u>Water Rights</u> <u>Filing No.</u>	<u>Source</u>	<u>Amount of Water</u> <u>Right C.F.S.</u>	<u>Acres under</u> <u>Water Right</u>
233163	Cottonwood Creek	100	3,640
233164	Sand Creek	75	3,640
233165	Lost Creek	25	840
233166	Sheep Creek	20	750
233167	Lake Creek	100	3,640
233168	Big Muddy	50	1,600 Homestead Lake
233169	Big Muddy	1,200	2,000 Medicine Lake

Refuge water use records extend back to June 1936.

C. Purpose of Use

All appropriated waters were used for irrigation of ^{lakes and} marshes to produce wildlife food and habitat, disease control, and storage to satisfy late season water demands of the above.

D. Season of Use

Water usage on the refuge was on a year-round basis with the heaviest use occurring between late March and early November.

E. Quantity Used

All refuge water units were filled to capacity in March and April 1967. As the season progressed all impoundments were gradually lowered by evaporation and percolation.

F. Place of Use

The Annual Summary of Water Use Form also shows the place of use for all waters appropriated during 1967.

G. Adequacy of Supply

The major water supply is derived from melting snow and heavy rains in the spring. A small amount of water is obtained from live springs and summer rains. No permanent streams enter the refuge.

The water supply this year was about 24,000 acre feet in excess of our needs. Most of this surplus was in Medicine Lake proper and the remainder in Homestead Lake. The total inflow during 1967 was a whopping 85,777^{61,530} acre feet of water. This is one of the largest inflows in recent years.

All impoundments were at the recommended operational level in April and thereafter the units received slowly until freeze-up.

The following chart lists the monthly levels in all units during the 1967 season.

MONTHLY RECORD OF GAUGE READINGS - 1967

IMPOUNDMENT	No. 4*	No. 6*	Unit No. 10	Unit No. 11	Unit No. 12	Katy's Lake
PRESENT						
OT. R. LEVEL	1943.00	1937.65	1945.00	1951.54	1954.00	1954.00
January	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
February	Frozen	Frozen	Frozen	Frozen	Frozen	Frozen
March	1942.18	1938.10	1946.57	1953.58	1954.00	1953.00
April	1943.30	1937.73	1945.09	1952.54	1955.73	1954.00
May	1942.80	1937.56	1945.53	1951.52	1954.88	1956.00
June	1942.96	1937.20	1944.29	1951.52	1954.44	1955.52
July	1942.72	1936.70	1944.09	1951.50	1954.40	1954.64
August	1941.56	1935.10	1943.63	1951.24	1953.32	1954.30
September	1941.56	1935.10	1943.23	1950.46	1952.64	1953.64
October	1941.53	Dry	1943.80	1950.52	1952.46	1953.50
November	1941.56	Dry	1942.80	1950.52	1952.62	1953.00
December	Frozen	Dry	Frozen	Frozen	Frozen	Frozen

All gauge readings as of the middle of each month.

*No. 4 - Medicine Lake

*No. 6 - Homestead Lake

Given in the following chart are deficiencies in unit water levels at freeze-up time during the 1962-67 period. The figures are not absolutely correct as there are no accurate measurements of impoundment capacities.

The following DEPT ENERGY TABLE AS OF DECEMBER 1

WATER UNIT	1962	1963	1964	1965	1966	1967
Medicine Lake	3,352	3,352	17,000	12,230	27,800	23,000*
Hopetoad Lake	1,313	1,000	1,400	2,400	2,000	3,000*
Katy's Lake	262	224	600	140	242	073
No. 10 Lake	671	310	1,700	360	1,536	1,000
No. 11 Lake	330	102	1,400	426	440	330
No. 12 Lake	335	471	1,000	231	1,000	500
Totals	11,163	11,068	23,500	16,287	33,918	19,753

*Water released for disease control or harvest management.

30,689

II. Recommendations for 1967

We will need approximately 19,753 A.F. of water to bring all in, on hand to up to an operational level in the spring of 1967. The average needed from 50 ponds is 25,000 A.F. Any shortage would be mainly in Medicine Lake center and would not be critical.

The following recommendations are offered for water management on the refuge during 1967:

1. Current approved operational levels will be continued for 1967.
2. Impoundments will be filled as early as possible in the spring and maintained as long as disease conditions will permit.
3. Water in excess of that is needed to obtain approved operational levels will be diverted to the next downstream impoundment. Water draining into the northeast end of the refuge will be used to fill water Unit No. 12 first and then to Units 11, 10 and Medicine Lake in that order. Water flowing from the Biguddy Creek will be used to fill Hopetoad Lake and Medicine Lake at the same time. Any excess water from Biguddy Creek will be flumed through Hopetoad Lake and out to the Biguddy Creek again.

5. The following water use priority is proposed.

<u>Unit</u>	<u>Main Purpose</u>	<u>Priority</u>
Katy's Lake	Nesting & rearing	1
No. 12 Water Unit	Nesting & rearing	1
No. 11 Water Unit	Nesting & rearing	1
No. 10 Water Unit	Storage, nesting & rearing	2
Gaffney Lake	Storage and rearing	2
Medicine Lake	Storage	2
Homestead Lake	Nesting and rearing	1

LAMESTEER NATIONAL WILDLIFE REFUGE
WIBAUX, MONTANA

ANNUAL WATER PROGRAM - 1967

1. Source of Supply

Spring run-off water entering the reservoir via Lamesteer Creek is the entire source of water for the Lamesteer Reservoir.

2. Type of Rights

A "Notice of Appropriation of Water" claiming 427 acre feet of water of Lamesteer Creek was posted on June 30, 1938, over the signature of Wilbert A. Rodgers, Administrative Assistant, Bureau of Biological Survey, as authorized agent for the Secretary of Agriculture. The fact of posting was recorded in Book 6 of Miscellaneous on page 345 in the Wibaux County Recorder's Office, Wibaux, Montana, on July 16, 1938.

3. Purpose of Use

During the 1967 season all appropriated waters were used for flood control, water conservation, propagation and feeding of waterfowl, and for irrigation as called for in the "Notice of Appropriation of Water".

4. Season of Use

Water usage on the refuge is on a yearlong basis with the heaviest demands being made during the ice free period of March through November when evaporation and transpiration rates are the greatest.

5. Quantity Used

Nearly all water received was from melting snow and heavy rains during the March-April, 1967 period. During a visit on April 18, water was running over the spillway. The water level was 6 inches below crest on July 27 and 2 feet below crest on October 17, 1967.

6. Place of Use

All appropriated waters were used within the boundaries of the SE $\frac{1}{4}$ of Section 14 and all of Sec. 15, T12N, R60E of Montana Principal Meridian, Wibaux County, Montana.

7. Adequacy of Supply

The water supply for Lamesteer Reservoir was adequate this year. As mentioned in item 5, the water level was excellent all year. We have no way of knowing the acre feet of water that passed over the spillway.

8. Recommendations for 1968.

We have no recommendations for the 1968 season other than to hold all water entering the reservoir until the spillway elevation is attained; any water in excess to this amount will be spilled on downstream from the refuge. We cannot control the reservoir water elevations nor forecast the amount of spring and summer run-offs that will enter the reservoir.

Submitted: A. M. White
Refuge Manager

Date: Feb. 8, 1968

Approved: Vernon E. Bradford

Date: 2-29-68

ANNUAL SUMMARY OF WATER USE
 Medicine Lake NATIONAL WILDLIFE REFUGE
 For the year 1967

Submitted by Donald M. White
 Signature
 Title Refuge Manager

Water Rights				Period of Use				Rate of Diversion c.f.s.	Acre Feet	Place of Use				
Source of Supply	Type of Right	Priority Date	Amount	Month	Days	Use	Diversion			NE 1/4	NW 1/4	SW 1/4	SE 1/4	Totals
Bottom-wood Creek	Approp. Filing No. 233163	11/7/56	100	March	1		30	60						
				"	7-15 hrs.	200		3,099						
				April	30	Total	15	3,000						
							4,099							
Lake Creek	Approp. Filing No. 233167	11/7/56	100	March	2-18 hrs.	120	660							
				April	4-10 hrs	12	106							
				April	24-24 hrs	3	153							
						Total	919							
Sand Creek	Approp. Filing No. 233164	11/7/56	75	March	4		32	256						
				"	4 & 16 hrs	30	666							
				"	5 & 2 hrs	18	187							
				"	19 & 2 hrs	5	191							
						Total	1,300							
Big Spring to Medicine Lake	Approp. Filing No. 233169	11/7/56	1,200	March	2		756	3,024						
				"	2		1,200	4,800						
				"	2 & 16 h	1,500	8,016							
				April	4 & 6 hrs	1,200	10,400							
				"	8 & 8 hrs	300	3,050							
				"	6 & 6 hrs	1,500	18,750							
						Total	50	1,440						
								49,480						

Water Unit No. 11 with surplus to No. 10 and Medicine Lake. (For legal description see pages 3, 4 & 5 of May 1965 Record of Diverted Water Use Report, Form I Hyd P-103,0.)

Water Unit No. 12 with surplus to Unit 11, 10 and Medicine Lake. (For legal description see pages 2, 3, 4 & 5 of May 1965 Record of Diverted Water Use Report, Form I Hyd P-103,0.)

Water Unit No. 10 with surplus to Medicine Lake. (For legal description see pages 4 & 5 of May 1965 Record of Diverted Water Use Report, Form I Hyd P-103,0.)

Storage in Medicine Lake. (For legal description see page 5 of May 1964 Record of Diverted Water Use Report, Form I Hyd, P-103,0.)

ANNUAL SUMMARY OF WATER USE
Medicine Lake NATIONAL WILDLIFE REFUGE
 For the year 1967

Donald M. White
 Submitted by Donald M. White
 Title Refuge Manager Signature

Water Rights				Period of Use				Rate of Diversion c.f.s.	Acres	Place of Use				
Source of Supply	Type of Right	Priority Date	Amount C.F.S.	Month	Days	Days	Twp			Range	Sec.	NE 1/4	NW 1/4	SW 1/4
lg	Approp.	11/7/36	50	March	4 & 16 hr	150	1,400							
ady	Filling Re.			April	7 & 10 hr	100	1,485							
meek	to 233166				12	15	360							
	meekstead				Total		3,245							
meek	Approp.	11/7/36	25	March	7 & 27 hr	60	925							
meek	Filling Re.			April	23 & 310 hr	3	377							
	233166				Total		1,302							
meek	Approp.	11/7/36	20	March	1 & 3 hr	320	640							
meek	Filling Re.			"	"	150	600							
	233166			"	5 & 18 hr	30	345							
				April	30	2	120							
					Total		1,705							
Medicine Lake to Meekstead Res					(None this year.)									
Medicine Lake to Meekstead Res				April	26 & 16 hr	400	21,392							
Meekstead Lake to Meekstead Res				April	26 & 12 hr.	55	2,945							

To Homestead Lake. (For legal description see page 6 of May 1965 Record of Diverted Water Use Report, Form 1-Hyd. F-108.C.)

To Homestead Lake. (For legal description of area of water use refer to page 6 of May 1965 Record of Diverted Water Use Report, Form 1-Hyd. F-108.C.)

To Homestead Lake. (For legal description refer to page 6 of the May 1965 Record of Diverted Water Use Report, Form 1-Hyd. F-108.C.)

Overflows water from Medicine Lake and out into Meek Creek. This water was excess to our needs.

Release of water from Homestead Lake into Meek Creek and out of the refuge. This water was excess to our needs.